

PRENATAL EXPOSURE TO PBDE'S AND CHILD BEHAVIOR AT 3-5 YEARS

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Background and Aims: Polybrominated diphenyl ethers (PBDEs) are widely used flame retardant compounds that are persistent and bioaccumulative. Exposures are relatively low in the EU but ubiquitous in the U.S. We have previously shown adverse associations between prenatal PBDE and child neurodevelopmental outcomes. Here we evaluate effects of prenatal exposure to PBDEs on child behavior at 3 and 5 years (Herbstman et al 2010).

Methods: This study was conducted within a longitudinal cohort study initiated to examine the impact of prenatal exposures to toxicants, including PBDEs, which may have been emitted from the World Trade Center (WTC) buildings in New York City following the 9/11/2001 attack. PBDE levels were measured in cord blood collected from 210 non-smoking women delivering at hospitals near the WTC site between 12/2001-6/2002. Child behavioral problems were measured by maternal report using the Child Behavior Check List (CBCL) for ages 1.5 to 5 years on 143 children who also had cord PBDE measurements. Multiple variable Poisson regression analyses assessed associations between concentrations of PBDE congeners 47, 99, 100, and 153 and various indices of child behavior.

Results: Among girls, one or more PBDE congeners were significantly ($p < 0.05$) inversely associated with Emotionally Reactive, Withdrawn and Internalizing behaviors. Among boys, one or more congeners were significantly inversely associated with Sleep problems. We observed child sex-by-PBDE interactions for a number of Syndrome scales.

Conclusions: The PBDE congeners were inversely associated with several Syndrome scales but results differed significantly by child sex. Few prior studies have examined this association; confirmation is needed in additional larger studies.

References: Herbstman JB et al. [Environ Health Perspect.](#) 2010 May;118(5):712-9.